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An essay on

Bilious Fever

of Virginia

by

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Bilious Fever of Virginia.

This is an indigenous disease which annually sweeps away more of our inhabitants, than any other with which we ~~we~~ are afflicted. Like the inundations of the Nile it is periodical in its occurrence; but while the one, overflows the country with riches and fertility, the other, desolates it with destruction and death. Proteus like it assumes different aspects, and transforms itself into a vast variety of shapes. The disease assumes the remittent type; but although it abates, it does not entirely go off before a fresh attack ensues; or in other words, one paroxysm so quickly succeeds the other, that the patient is never free of fever. The remissions are very uncertain in their returns, periods and duration. The predisposing cause of bilious fever is

marsh miasm. With the nature of this morbid agent we are not acquainted; nor shall we attempt to wander in the unprofitable path of hypothetical speculation. We know it is evolved from vegetable substances in a state of putrefaction; that the system becomes impregnated with it while floating in the atmosphere, and that it produces in the body a liability to diseased action, so that nothing is wanting but an exciting cause, to arouse into action the predisposition already produced. —— The exciting causes are numerous; as exposure to damp weather or night air: whatever weakens the body or has a tendency to disorder the primæ viæ; as cold, anxiety, excess in evacuations, unwholesome diet, suppression of perspiration &c which act

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as above stated, by awakening the predisposition into action. — The disease is more prevalent when calm and sultry weather succeeds heavy rains. It is more apt to arise when atmospherical heat runs high, or when the atmosphere has attained its maximum of heat. The effects of heat, or in other words of a heated atmosphere in the production of disease, have been uniformly confessed; its influence indeed has been proverbial from the dawn of medical science to the present day; hence in the time of the Greeks and Romans, a burning atmosphere and the devastations of disease were considered as invariably associated. Bilious fever is oftener met with in countries abounding with fens, stagnant pools, marshes &c from which exhalations are consequently evolved. As to the modus operandi of marsh

miasmata various opinions have been entertained; but it is probable the primary morbid impression is first made upon the stomach, and as the hepatic system is at this time very irritable, and by virtue of the sympathetic association existing between the stomach and liver, the impression is soon communicated to this organ, which ultimately bears the onus of the disease, and becomes the principal point of excitement. From the hepatic congestion and derangement of the secretory function; from the biliferous tubes being locked up, and engorged with viscid and depraved secretions &c we are led to conclude that the liver becomes the seat and throne of the disease, whence as from a point of action it propagates its ravages

to different parts of the system. The biliary secretion is sometimes increased, and sometimes diminished; for it is a well known fact that when any gland is over excited its secretion becomes unnatural either in quantity or quality, it is either increase or diminished, but always depraved. — — — —

Symptoms. Preceding an attack of bilious fever there are many premonitory symptoms; as heaviness and languor, a sense of anxiety, sighing, stretching and yawning, with frequent fits of heat and cold. On its accession the patient complains of pain in the head, back and side; much heat prevails over the body, with thirst, difficulty of breathing, throbbing of the temporal arteries, gastric distress followed by a vomiting of bile. The tongue is furred, and

the pulse quick and full. After these symptoms have continued for some time, there is a considerable abatement or remission of the fever, or it not unfrequently goes off in a partial degree, by a gentle sweat imperfectly diffused over the body. The remission is of short duration, for the paroxysm soon returns with the same appearances as before. After repeated exacerbations and remissions, the disease proceeds to a crisis, or it appears with augmented severity. The remissions are sometimes scarcely perceptible, and then follow a host of aggravated symptoms, and the whole phalanx of danger breaks forth. The patient complains of an uneasiness over the whole body. While the cold is severe on the surface, a burning heat rages within.

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The stomach is oppressed, and sometimes becomes the seat of the most intolerable anguish, at other times of a sharp gnawing pain. We have often known the liver to be affected with the most excruciating pain, when by the patient it was refferred to the stomach. The abdomen swells enormously; it is tense and hard; and sometimes a fluid appears to float beneath the fingers when applied to it. In every stage of the disease, this symptom will generally be the most prominent. When the other abdominal muscles are perfectly loose and relaxed, the recti, will be tense, hard and contracted. One of the most common symptoms is an inability to lay on the left side. The mind is more affected in Bilious fever than any other disease, except

affections of the brain. Women are particularly liable to hysterical fits. A very frequent symptom is a kind of burning in the urethra, produced by the passage of the urine through it. The patient is often affected with eructations, tinnitus aurium, vertigo, and a vomiting of bilious, yellow, porraceous, foetid and sometimes bloody and black matter takes place. The matter rejected by vomiting is sometimes a ropy transparent fluid, and sometimes it resembles the black vomit. The thirst is constant, the mouth and fauces are dry and clammy, with great tightness across the chest. A complete deprivation of sight and hearing often takes place, with hemorrhages from the gums, nose and ears. The symptoms which accom-

pany bilious fever are various accor-
ding to the season of the year, the con-
stitution of the Patient &c The lan-
guage of the justly celebrated Hennen
(when speaking of injuries of the head)
is so appropriate that we can scarcely
refrain from quoating it. "The young
surgeon, (says he) who for the first time,
witnesses a series of injuries of this de-
scription, will at every step have
something to unlearn; he will find
symptoms so complicated, contra-
dictory, and insufficient, to give
any rational clue to their causes;
diagnostics, of the truth of which
he had read himself into a convic-
tion, so totally unsupported by
the results of practice; and the
sympathies he was led to look for

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as infallible accompaniments of certain states of disease, so often wanting altogether, that he will probably be inclined to relinquish the hope of ever arriving at a correct theory, or at least, he will enter the clinical ward with the pride of science considerably subdued"

Diagnosis.-- By attending to the principal features of the disease, we shall be able to distinguish it from all others, for they are generally prominent and well marked; as the vomiting of bile, sallowness of the skin &c.. The season of the year should likewise be taken into consideration--

Prognosis.-- In making up our opinion as to the probable termination of the disease, we should exercise tho-

rough deliberation, and mature reflection, for the symptoms are so variable, so various and so complicated, although we at one moment may be elevated with hope, and have our anticipations feasted with the prospect of a speedy recovery, the next moment, may blast all our hopes, and depress us into the gloom of melancholy. When after a few days there is a remission of symptoms, and the stomach becomes composed, when the pulse is soft, slow and natural, the urine deposits a lateritious sediment, the mind is calm, and the remissions distinct and well established, the fairer will be the prospect of a recovery: but the safety of the patient is rather to be estimated from the mildness of the exacerbations, than from the length and completeness

of the remissions. When there are violent palpitations of the heart, and much anxiety, when the natural tone of the voice is altered, when the pulse is frequent very weak and irregular, when the respiration is anxious and quick, interrupted with frequent sighs and groans, when there are haemorrhagies from different parts of the system, and if upon these symptoms a hiccup supervenes, especially if it is accompanied with a vomiting, the patient may be considered in great danger. Depravation of particular senses particularly false vision is among the worst symptoms. Deafness on the contrary we may ever hail as a very favourable omen. Involuntary twitchings of the muscles, picking at the bed clothes are generally followed by convulsions.

which carry off the patient. If a colliquative diarrhoea take place, if the matter rejected by vomiting is similar to the black vomit, or if a relaxation of the sphincters take place &c these symptoms may be considered the harbingers of death. --

To the head of prognosis belong the critical days, or the days in which the great changes of fevers most frequently happen. Many Physicians have attempted to assign the cause of the changes which fevers undergo on these days. The most ancient opinion, and that of Hippocrates was founded upon the Pythagorean doctrine of numbers. This doctrine was rejected by Galen, who thought the crises of fevers depended upon lunar influence. It is perhaps an arcanum nature, which we shall not attempt to unravel, for fear we

should suffer the punishment of him who stole fire from Heaven. The critical days are the third, fifth, seventh, ninth, eleventh, fourteenth, seventeenth and twentieth, and according to some the twenty-first. Every Practitioner who has noticed the progress of bilious fever, has certainly had occasion to remark that there is more or less tendency to a remission on certain days, which however is not so distinct as those of Hippocrates, owing perhaps to climate, constitution or some other causes. From the universality of tertian and quartan periods in intermittents, we cannot doubt that there is in the animal economy a tendency to observe such a period, and the critical days just mentioned consistent with a tendency

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make them tertian or quartan periods. The periods are not promiscuously mixed, but occupy constantly their different portions in the progress of the disease; or that from the beginning to the eleventh day, a tertian takes place, and from the eleventh to the twentieth, a quartan is observed. What determines the period to be changed upon the eleventh day we do not know.

Dissections show that the stomach, liver, spleen, pancreas, mesentery and omentum are inflamed, enlarged, indurated or sphacelated; the gall bladder is turgid and an unusual quantity of bile is accumulated in the stomach and intestines; the liver is engorged blood, and the vena portarum

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and its branches enlarged and congested. The brain is congested with blood or extravasations of blood and water. In fact from the strict bonds of sympathy which link the stomach and liver (the primary seats of the morbid impression) with the different parts of the system, we may infer, perhaps without stretching our credulity too far, that the whole system becomes involved and suffers.

Treatment. The inflammatory symptoms generally preponderate and run high, consequently venesection is loudly called for, and imperiously demanded. By its timely application, we will curb the violence of the disease, strangle it in its forming state, lessen the action of the heart and arteries, moderate the rapid

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motion of the fluids, and abate the violence of the fever. Venesection either to a greater or less quantity, as the symptoms and circumstances indicate, is absolutely necessary, and the quantity to be taken should be regulated by the age and strength of the patient, the degree of plethora, the fulness and hardness of the pulse, and the violence of the fever and its symptoms. We should always make it a rule never to prescribe by the ounce, but according to the effect produced. If the pulse rise after the first bleeding, or if the fever continue still high, the operation should be repeated. In some instances the pulse "ab ovo usque ad mala", is weak and depressed; under these circumstances venesection would obviously be improper. The nausea and vomiting which

so often attend this disease will frequently be checked by blood letting; it makes the bowels easier to be moved by purgatives, promotes the action of diaphoretics, disposes the body to spontaneous sweat, relieves pain in every part, and especially the head and side, abates the burning heat of the skin, destroys the morbid afforcations of the blood vessels overcomes coma and delirium, and produces a disposition to sleep. We will thus likewise prevent chronic affections of the liver, and all the different states of dropsy which often follow the disease.

Measures should now be taken to cleanse the whole intestinal canal and primæ viæ, and we should commence with an emetic. Tartar emetic is preferable to all others unless there is too much

irritability of the stomach. We have already demonstrated that bilious fever is a result of sympathy, having the primary link of its chain in the stomach. To expel therefore the offending cause, or to subvert the morbid impression in its forming state before it becomes invigorated, diffused and fixed, and to destroy the disease at a single blow, emetics can be preeminently high. We have also demonstrated that the liver is very particularly affected, and seriously implicated, that its integrity of function is destroyed, and that it becomes the seat of a collection of vitiated and depraved bile. The vena portarum is frequently enlarged, and the blood stagnates in its branches. We cannot with more

certainly remove this stagnation and bilious congestion than by emetic medicines; for when these excite vomiting, the liver is as it were in a press, where it is agitated by alternate concussions By pressure and concussion, the blood is forced out of its small vessels, while the bile is pushed into the intestines, and from thence discharged. The accumulation is so great and rapid, that to vomit once is seldom sufficient, for after a short time such a fresh accumlation take place, that a paroxysm of vomiting occurs as plentous as before. Emetics promote the circulation of the fluids, rouse the nervous energy, and throw into action the capillaries throughout the system; and thus it is that the fluids which had

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began to stagnate in the extreme vessels, are pushed onward in the course of the circulation. They equalize the excitement of the system, by inviting its excessive degrees of action from the blood-vessels to the stomach and bowels, and weaken and break down the force of the disease, if they do not eradicate it. We thus clear the stomach of irritable contents, relieve nausea and vomiting, and prepare the way for other medicines. The disease is sometimes arrested in its forming state, or cut short before it becomes too deeply rooted; the morbid associations of the system are broken up, and the first link of the chain severed. If it survive this blow its energy will be much diminished. After the

operation of the emetic, we will generally find exhilaration of spirits, and renovated energy, head-ache relieved, a reduction of the temperature of the surface, with a relaxation of the extreme vessels, which restores quietness and hastens a critical solution.

Cathartics are next in utility to emetics. There are various morbid accumulations which are sufficient to confirm the disease when excited into action. It is of primary importance to expel these morbid collections and all depraved and vitiated juices from the intestinal canal as soon as possible. The best purgative to commence with, is a combination of calomel and gamboge, to be succeeded (if there is much arterial action) by some of the saline

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preparations, as they have more influence over the blood-vessels and thereby reduce vascular action by abstracting from the general circulation a considerable portion of fluid. If from irritability of the stomach, or any other cause, Gamboge should not be taken, the calomel may be administered either alone or in combination with rhubarb or jalap. Given in either way, it proves very effectual in carrying off putrid, feculent matter from the intestines. If there is a sufficient reduction of vascular action, the calomel &c should be worked off with oil. We should continue to purge until the tongue becomes clean, the abdominal muscles loose and relaxed &c These medicines by stimulating and unlocking the passages of the liver cause the bile to flow through

it; by relaxing the surrounding parts they make the blood circulate more freely and open the excretory and secretory ducts. In protracted cases we should purge with calomel until dark, tarry, fatid stools appear, for often the intestine has a kind of investment over which fæces &c pass, the investment at the same time sticking firmly to the intestinal surface and remaining undisturbed. To remove this matter small and repeated doses of calomel, so small as to linger in the intestines answer well. We have stated that there is hepatic congestion and visceral derangement, ~~that~~ there is either a redundancy or deficiency of the biliary secretion, and that the tubes of the liver are engorged with depraved secretions. We cannot with more certain-

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ty remove the effects we have enumerated than by administering mercury in the above-mentioned manner, for it lessens the general tension of the liver, frees and emulges the ducts, and restores the organ to its integrity of function. Unless we make some impression upon the liver we will not effect a cure, for on the healthy action of this organ, the healthy action of nearly all the other organs depend. The liver, stomach, spleen, pancreas and intestines are so intimately united and associated, that neither can be deranged in function, without drawing in the others to a participation. Mercury acts upon the liver precisely as it does upon the salivary glands. The medicine should be discontinued as soon as a mercurial foetor is detected in the

breath, and the gums become red and spongy. As the ptyalism comes on the train of morbid symptoms will proportionably subside. It often happens that there is a large collection of air in the bowels which causes the abdomen to swell enormously; if the hand is applied to it a fluid appears to roll beneath. Under these circumstances Spirits of turpentine displays invaluable effects, almost always procuring relief. In cases where it is necessary to purge and we are afraid of inducing too much debility this medicine may be used with decided advantage, for it produces copious evacuations and at the same time supports the sinking strength of the system. Nothing will with more certainty arrest the hiccup which is so often an

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attendant upon the latter stages of the disease. In obstinate constipation anemata are highly useful, but they are generally resorted to, to hasten the tardy operation of other medicines, or when there is great irritability of the stomach.

In our curative process cold effusions should not be passed over. The best and least hazardous manner of using this remedy is to sponge the body with cold water. This should be done during the height of the paroxysm; or where there is much activity of pulse, great heat over the body, headach and delirium. The effects of this remedy are very conspicuous; for it quiets the irritability of the blood-vessels, and produces a gentle diaphoresis, which induces a disposition to sleep. In this way we sometimes cut short the paroxysm, as-

tablish distinct and well marked remissions and make the disease assume the intermittent type.

After premising proper evacuations opiates are of the utmost utility. When properly prescribed, they calm the agitations of the system, recruit the exhausted energies of nature, and soothe the distresses of the patient: they produce a sweet oblivion of the past, and sweet the mind with pleasing anticipations for the future. Should it at any time be necessary to give opium and we are afraid of it, Ipecacuanha may be substituted, for it appears to possess nearly every property of opium and to be destitute of its stimulant effect.

To assist in allaying the violence of the fever, we should be careful to remove every thing which may aggravate it. The pa-

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tient should be kept perfectly still and quiet, the covering of his bed should be light and his chamber of a moderate temperature by the free admission of air. From time to time, he should take some acidulated drink, as lemonade, sod water &c.

Strict attention should be paid to the state of the mind, for its influence upon disease is truly astonishing -- although the patient may be upon the very threshhold of destruction, still if the mind is elevated with hope, death will be despoiled of its victim, and the body deadened to sensibility. Attention to the mind then, is the best Panacea which can be recommended.

Blisters should be applied to about this time. From their stimulant effect

if used before venesection, emetics and purgatives, they aggravate every symptom they were intended to relieve. When applied at a proper time they restore the circulation, which is partial, and completely broken up, quiet the commotions of the system, and annihilate the morbid association upon which the disease depends. They are the most powerful antispasmodics in the whole Materia Medica, and at the same time are stimulant and anodyne, and are particularly useful when there is much pain, when the spirits flag, when the pulse is low and fluttering and when there is a tendency to delirium. The blister should be applied to the head, over the liver, to the vertebral column &c according to circumstances. We have often seen patients

with nearly every symptom of Trismus completely relieved by applying a blister all the way down the spine. After the blister produces its effect the disease assumes a new aspect. The countenance which was gloomy, melancholy and sad, becomes more cheerful and animated; the pulse which was small, weak, tremulous and sinking, becomes soft, open and vigorous; the extremities which were cold and pallid have a gentle warmth diffused over them; the extreme vessels which were torpid and constipated become relaxed and open, and the liver which was tense congested and deluged with blood, becomes diminished in tension, and the blood glides gently through it. These are some of the important advantages derived from a blister, and we believe

in the treatment of bilious ever it is a sine qua non. The modus operandi of a blister is perfectly intelligible. "Ubi stimulus ibi fluxus." The more excitement is accumulated in one part, in the same ratio is it destroyed in others. — —
Cataplasms in some cases should be applied to the wrists and feet, or to the arms and thighs.
"We now pass to the consideration of diaphoretics. These are a very important class of medicines, but in using them we must be ~~we must~~ directed by judgment, tempered by discretion. They are either internal, or external, but appropriated to different cases. When we wish to bring on a crisis in the fever, the antimonials are decidedly preferable. Tartar emetic is usually given for this

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purpose in the dose of 1/8 of a grain; the dose to be repeated according to circumstances. The antimonials produce a specific impression upon the stomach, and destroy the roots of the disease, consequently it must wither and decay. Cases will sometimes occur where from irritability of the stomach these medicines cannot be taken. In such cases we resort to some of the kindred articles, as the Saline mixture; this reduces the pulse and quiets irritability. If we wish to increase its diaphoretic power we may add Sweet Spirits of nitre, or antimonial wine. The diaphoretics denominated the refrigerant are highly useful. These are almost all the neutral salts. Nitre is most commonly used, either alone or in combina-

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tion with tartar emetic or calomel, or both
In making the external application of
heat we resort to it in the form of vapour,
as immersing hot bricks in vinegar or
water and while the vapour is rising
wrap them up and apply them. Three
or four applications will produce a co-
pious diaphoresis. – Diaphoretics cause
the blood to glide gently through the vis-
cera, obviate or remove deep seated con-
gestions, subvert the morbid condition
of the capillaries, and produce upon
them an impression of the most salu-
tary kind. There will be an equal dif-
fusion of temperature, a restoration of
the lost balance of the circulation.
and a total subsidence of all febrile
commotion.

As soon as the fever shows a disposition

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to yield, and upon the slightest and shortest remission bark should be given. The earlier it is commenced with, the more speedy and complete will be the cure. Although it may not be sufficiently efficacious in first to prevent a fresh attack, yet it will always mitigate the subsequent returns of the fever, and ultimately bring about distinct and well established remissions. When it cannot be retained from irritability of the stomach, it should be combined with some aromatic, or given by injection. As much ~~much~~ should be taken during the remission as the stomach will well bear. The [illegible] dosing in consequence of the minuteness of size and facility of exhibition, is thought by some to produce more prompt and complete cures

than the crude medicine. In using it we conform to the regulations adopted in relation to the bark. Next in efficacy to Peruvian bark is the serpentaria Virginiana. In some cases it is still better adapted than bark, in as much as it rarely offends the stomach, and may be taken in obscure states of the disease when the remissions are very slight and scarcely perceptible. The best preparation is the cold infusion.

When the remedies already mentioned have failed much confidence is deserved by reposed in mercury urged to a salivation, indeed it is the only last anchor of safety, the only hope upon which to hang a hope. When the disease resists every other mode of treatment and continues for some time, it is reasonable to suppose the existence of some visceral derange-

ment, which can only be relieved by mercury. Should the disease then not give way after the remedies which we have recommended have been fully employed, a salivation should be induced and kept up for some time. For this purpose, from five to ten grains of calomel combined or not with opium, should be administered every four or six hours until salivation is well raised, when there will be a remission of all the febrile symptoms and safety secured to the patient.

During the course of the disease as little drink ~~should~~ should be taken as possible; for if we suffer the stomach to be distended, retching and vomiting will come on an aggravate all the febrile symptoms. Large quantities of liquids only weaken and oppress the stomach without

allaying thirst. The drinks should be mild and not in the least stimulating, as lemonade, apple water barley water, rice water buttermilk &c which should in a great measure constitute the ~~the~~ diet of the patient. As convalescence becomes establish[illegible] the patient should be removed from the room in which he has been confined, or every thing taken from his sight which will remind him of his illness; for such things being constantly before him, keep up an association of ideas, relative to the scene which has passed and have a great tendency to prolong convalescence. A little exercise should be taken, as gestation, riding on horseback &c but walking as it is accom[illegible] with a uniform exertion of the muscles and promotes the circulation, is preferable

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to all other modes of exercise.

Exposure to marsh miasmata and all those causes which are favourable to their operation should be avoided.